

WHAT IS CLAIMED IS:

1. An optical pickup installed in an optical disk reproducing device for reproducing information from an optical disk by projecting a laser beam on the optical disk,

said optical disk comprising:

laser source power control means for controlling power of a laser source to switch operation modes between a low-power operation mode and a high-power operation mode; and

attenuating means for attenuating, only in the low-power operation mode, a laser beam emitted by a laser source onto the optical disk.

2. The optical pickup as set forth in claim 1, wherein the attenuating means includes a polarization beam splitter disposed in an optical path between the laser source and the optical disk, and a polarization rotating element disposed between the laser source and the polarization beam splitter.

3. The optical pickup as set forth in claim 2, wherein the polarization rotating element is a liquid crystal element with a liquid crystal layer for generating a phase difference in the laser beam in response to applied electric field in the low-power operation mode.

4. The optical pickup as set forth in claim 2, wherein a transmittance of a P polarized component of the laser beam passing through the polarization beam splitter in the low-power operation mode is 20% to 50% of that in the high-power operation mode.

5. The optical pickup as set forth in claim 1, wherein the attenuating means is a reflecting element for reflecting part of incident light from the laser source, or an absorbing element for absorbing part of incident light from the laser source.

6. The optical pickup as set forth in claim 5, wherein the reflecting element or the absorbing element is a liquid crystal element with a liquid crystal layer that serves as the reflecting element or the absorbing element in response to applied electric field in the low-power operation mode.

7. The optical pickup as set forth in claim 1, wherein the attenuating means includes at least a liquid crystal element with a liquid crystal layer, and the liquid crystal element serves to attenuate the incident laser beam on the optical disk in response to applied electric field to the liquid crystal layer in the low-power operation mode.

8. An optical disk reproducing device for reproducing information from an optical disk by projecting a laser beam on the optical disk, comprising:

an optical pickup operable to reproduce information in a low-power operation mode and a high-power operation mode by switching the two operation modes,

the optical pickup including attenuating means for attenuating, only in the low-power operation mode, a laser beam emitted by a laser source onto the optical disk.

9. The optical disk reproducing device as set forth in claim 8, wherein:

the optical disk reproducing device is operable to reproduce information from a single-layer disk and a bi-layer disk; and

the optical pickup is operated in the low-power operation mode when reproducing information from the single-layer disk, and the optical pickup is operated in the high-power operation mode when reproducing information from the bi-layer disk.

10. The optical disk reproducing device as set forth in claim 8, wherein:

the optical disk reproducing device is operable to reproduce information at a normal speed and at a double

or faster speed; and

the optical pickup is operated in the low-power operation mode when reproducing information at a normal speed, and the optical pickup is operated in the high-power operation mode when information is reproduced at a double or faster speed.

11. The optical disk reproducing device as set forth in claim 9, wherein:

the optical disk reproducing device is operable to record information in the optical disk; and

the optical pickup is operated in the high-power operation mode when recording information.

12. The optical disk reproducing device as set forth in claim 10, wherein:

the optical disk reproducing device is operable to record information in the optical disk; and

the optical pickup is operated in the high-power operation mode when recording information.

13. The optical disk reproducing device as set forth in claim 8, wherein the attenuating means includes:

a polarization beam splitter disposed in an optical path between the laser source and the optical disk; and

a liquid crystal element with a liquid crystal layer, disposed between the laser source and the polarization beam splitter, for generating a phase difference in the laser beam in response to applied electric field in the low-power operation mode.

14. The optical disk reproducing device as set forth in claim 13, further comprising:

monitor means for detecting a quantity of the laser beam; and

laser source power control means for controlling output of the laser source based on a result of detection by the monitor means,

wherein the laser source power control means switches control operations between the low-power operation mode and the high-power operation mode.